rotation of comets' tails at perihelion was a phenomenon of the same nature as the rotation of the radiometer (then believed to depend on the action of light): he wondered whether the light of the Sun might not act as a repelling force on the matter composing the tail, and wrote to the President of the Royal Society (Sir Joseph Hooker), making the suggestion. Professor Stokes, to whom the letter was referred, replied at some length not only to this but to several other queries of the young enthusiast, and ultimately went to see him in 1876 December, and further recommended him to Lord Lindsay, who also visited the "Dog and Gun" to see the astronomer behind the bar. This latter visit resulted in an invitation to Dunecht, where young Hopkins spent a delightful month among instruments such as he had dreamed of, returning home with a $1\frac{1}{2}$-inch telescope, with which all his subsequent observations were made up to 1882, including that of the transit of *Mercury* in 1878. He communicated these observations to the *English Mechanic*, and afterwards wrote various letters to that journal, the most important being one describing a proposed instrument for determining the colours of stars.

He was now apprenticed to a brass engraver, and his hours of work were very long. In 1883 his mother died. In 1884 he married; in 1886 he tried, without success, to establish himself in business in the City, and passed through a time of trying poverty and reverses, happily, however, not of long duration. His interest in astronomy never flagged. He had already commenced a book on "Astronomy for Every Day Readers; suitable to be taken up by the mechanic at the close of a laborious day's work, or by the tradesman after a harassing day spent in competing with his rivals," and continued his writing throughout this period of poverty. From difficulties in finding a publisher this book did not appear till 1893; from it most particulars in this notice have been taken.

Mr. Hopkins was elected a Fellow in 1883 April. He communicated three papers to the Society, one on the Great Comet of 1882, and two on "Erratic Meteors," meteors, that is, with apparently broken paths; all three were accompanied by drawings. He wrote several papers in the *Astronomical Register*, the *Observatory*, *Nature*, *Knowledge*, and the *English Mechanic*, and as a member of the British Astronomical Association contributed frequently to its journal.

His health was never good, and he died on 1894 January 16, at the early age of 32. He leaves an invalid widow and two little girls in very poor circumstances.

Richard Johnson was born at Dublin on 1840 March 22. He obtained a classical scholarship at Trinity College, Dublin, in 1867, but afterwards devoted himself to the teaching of experimental science with considerable success. He remained at this college, unmarried, till his death on 1894 February 6,

and his rooms in college were a regular centre of attraction to his friends and former pupils. He was devoted to athletic exercises, and especially to cycling.

He was one of the observers in the Transit of *Venus* Expedition, 1874, occupying the station of Waimea, in the Sandwich Islands, and his successful observations show him to have possessed considerable astronomical knowledge.

He was elected a Fellow on 1874 May 8, but contributed no papers to the Society.

GEORGE KNOTT was born on 1835 October 30, and was the only son of George Knott, Esq., of Bohun Lodge, East Barnet, a well-known connoisseur of pictures, who died in 1844. At nearly the same time our late Fellow lost his mother. His early education was conducted by private tuition, but he spent two years at University College, London, and graduated at London University (B.A. in 1856, LL.B. in 1857), in the affairs of which he always took a lively interest. On attaining his majority, and coming into a sufficient fortune, he settled at Cuckfield in Sussex, and married in 1859. Here he spent a life chiefly devoted to astronomy, until the time of his death, which occurred very suddenly in October last. An accidental chill developed into pleurisy on Monday, October 1, into inflammation of the lungs on the following Friday, and on Monday, October 8, he died. He leaves a widow, but no family.

Mr. Knott's life was devoted mainly to astronomy, though he kept himself acquainted with cognate sciences and rendered unobtrusive aid to benevolent and religious institutions. His interest in his favourite science was early awakened by the late Dr. Drew, F.R.A.S., of Southampton, and his first telescope was an excellent 4-inch Gregorian reflector which had belonged to his father. In 1859 he purchased a $7\frac{1}{3}$-inch equatorial and a transit circle, and commenced systematic observations of double and variable stars and planets with the former, and of various objects with the latter; but after a short time observations with the meridian instrument were restricted almost entirely to tran sits of the Sun for clock error. The observations of variables were maintained with marvellous regularity and continuity through most of the thirty-four years of Mr. Knott's working life, and his double-star observations until 1873, when he removed from his residence, Woodcroft, and built himself a new house with observatory attached, as near as possible to his old home. The building occupied a year or two, during which he lived in a smaller dwelling, and was practically cut off from observing; and this interval he employed in arranging for press his double-star observations, which were accordingly printed in vol. xliii. of our *Memoirs*. The year 1875 saw the telescope and transit re-erected at the new house, Knowles Lodge, and the interrupted watch on variable stars was resumed; but no serious work on double stars was again under-